



TORC TALK

FACT OR FICTION

Washing your race suit reduces its flame resistance?

There are two major players in the flame resistant race suit market, one using a product called Proban by Rhodia and the other using Nomex by Dupont. Both deteriorate but at totally differing rates and to differing extents. Only one deteriorates due to washing alone. If you put this into perspective though, every piece of clothing you own deteriorates just by the process of washing.

Right from day one I was told that washing your race suit at home reduces the retardant characteristics and should *NEVER* be done. I even heard that the Supercar and F1 drivers were breaking all the rules by washing their triple layered \$3000 race suits. That seems strange to me that a F1 team would take shortcuts like that. The problem as I see it is, if you happen to spill fuel and oil on your race suit, do you disregard it because it's a flame resistant race suit and shouldn't be washed or do you stick it in the washing machine ASAP? You can't wash it but then again it's covered in a flammable liquid. Doesn't that make it extraordinarily flammable? The other option of course is to throw the suit away and put a new one on. I thought that was a little odd so I started to snoop around and see what I could find out. The simple answer is that race suits can and should be washed at home unless the impregnation of dirt is so severe that washing at home isn't effective. In such cases, dry cleaning is the best method. All flame resistant products need a little care with detergents as some detergents will build up within the fibres and reduce the effectiveness of the suit. It must be noted that flammable contaminants on either product can ignite and burn until consumed, thus increasing heat transfer to the wearer.

The difference between the two products is simply that Proban is a chemical fire retardant which is applied to the fabric and Nomex is a fabric woven in such a way that it has inherent fire retardant properties without the addition of chemicals:

A description and washing instructions for both products

PROBAN:

PROBAN® Treated Protective Clothing can be washed using synthetic detergents such as Ariel and Persil, provided the detergent does not contain soap. A combination of soap and hard water can result in a coating building up on the surface of the fabric which may impair the garment's flame retardant properties.

Durability washing under laboratory test and industrial wash conditions shows that, with the correct application of PROBAN®, the fabrics flame retardant properties will last for the expected life of the article. After up to ten washes the protection levels will start to decrease, indicating residual polymer is being removed from the surface of the fibre. For the remaining eighty five washes the level of polymer drops slowly. This demonstrates the gradual removal of a small amount of polymer as fibre, which is lost due to the mechanical action of laundering. Although some of the polymer has been lost, that which remains is sufficient to meet the requirements for limited spread of flame in the Personal Protective Equipment Directive 89/686/EEC after 100 washes:



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Determination of the nitrogen to phosphorus ratio over one hundred washes shows this ratio remains constant. This confirms the chemical nature of the polymer remains unchanged during extended washing.

(Basically Proban has a usable lifespan of 100 washes.)

NOMEX:

Nomex is a woven material which due to its nature is inherently fire resistant. No laundry procedures are known to remove the flame resistance of Nomex.

Garments of Nomex can be washed and dried by any conventional home method followed by hand ironing if necessary. Synthetic, heavy duty liquid laundry detergents are recommended. Soap based detergents are less effective for the removal of heavy soils and are difficult to rinse out. In heavily soiled garments, higher water temperatures are recommended. No special technology is required for home laundering however home washing may not remove all traces of very heavy ground in contaminants which may be flammable. In such cases commercial laundering or dry cleaning should be used.

Garments of Nomex should be sorted and washed separately to prevent contamination of lint from flammable fibres. Heavily soiled garments can be pre-treated with full strength detergent rubbed directly on the stain. Only oxygen based bleaches should be used on Nomex. (chlorine based bleaches should not be used)

Garments of Nomex will have a smoother appearance when tumble dried instead of being line or drip dried. Nomex will dry faster than all cotton garments of the same weight.

Next time someone tells you not to wash your race suit because it degrades its flame resistance, you can inform them they are wrong.



Regards Pete L